

Application No.: 09/938956

Docket No.: CL1809USNA

Page 2

**Amendments to Claims**

**Claim 1 (Original).** A method for the production of a monoterpene comprising:

- a) providing a transformed C1 metabolizing host cell comprising:
  - (i) suitable levels of geranyl pyrophosphate; and
  - (ii) at least one isolated nucleic acid molecule encoding a cyclic terpene synthase under the control of suitable regulatory sequences;
- (b) contacting the host cell of step (a) under suitable growth conditions with an effective amount of a C1 carbon substrate whereby a monoterpene compound is produced.

**Claim 2 (Original).** A method according to Claim 1 wherein the C1 carbon substrate is selected from the group consisting of methane, methanol, formaldehyde, formic acid, methylated amines, methylated thiols, and carbon dioxide.

**Claim 3 (Original).** A method according to Claim 1 wherein the C1 metabolizing host cell is a methylotroph selected from the group consisting of *Methylomonas*, *Methylobacter*, *Methylococcus*, *Methylosinus*, *Methylocystis*, *Methylomicrobium*, *Methanomonas*, *Methylophilus*, *Methylobacillus*, *Methylobacterium*, *Hyphomicrobium*, *Xanthobacter*, *Bacillus*, *Paracoccus*, *Nocardia*, *Arthrobacter*, *Rhodopseudomonas*, *Pseudomonas*, *Candida*, *Hansenula*, *Pichia*, *Torulopsis*, and *Rhodotorula*.

**Claim 4 (Original).** A method according to Claim 1 wherein C1 metabolizing host is a methanotroph.

**Claims 5-6 (Canceled).**

**Claim 7 (Currently Amended).** A method according to Claim 4 wherein the obligate-methanotroph is a high growth methanotrophic strain which comprises a functional Embden-Meyerof carbon pathway, said pathway comprising a gene encoding a pyrophosphate dependent phosphofructokinase enzyme.

**Claim 8 (Canceled).**

**Claim 9 (Original).** A method according to Claim 7 wherein the high growth methanotrophic bacterial strain optionally contains a functional Entner-Doudoroff carbon pathway.

**Claim 10 (Canceled)**

**Claim 11 (Currently Amended).** A method according to Claim 4 wherein the high growth methanotrophic bacterial strain is methylomonas 16a having the ATCC designation ATCC PTA 2402.

**Claim 12 (Original).** A method according to Claim 1 wherein the cyclic terpene synthase is selected from the group consisting of limonene synthase, pinene synthase, bornyl synthase, phellandrene synthase, cineole synthase, and sabinene synthase.

Application No.: 09/938956

Docket No.: CL1809USNA

Page 3

**Claim 13 (Original).** A method according to Claim 1 wherein the monoterpene is selected from the group consisting of limonene, pinene, bornyl diphosphate,  $\beta$ -phellandrene, 1,8-cineole, and sabinene.

**Claim 14 (Original).** A method according to Claim 1 wherein the cyclic terpene synthase is limonene synthase, the monoterpene is limonene and the recombinant host is *Methylobionas*.

**Claim 15 (Original).** A method according to Claim 14 wherein the limonene synthase has the amino sequence as set forth in SEQ ID NO:6.

**Claim 16-21 (Canceled).**

**Claim 22 (Original).** A method according to Claim 1 wherein the suitable levels of geranyl pyrophosphate are provided by the expression heterologous upper pathway isoprenoid pathway genes.

**Claim 23 (Original).** A method according to Claim 22 wherein said upper pathway isoprenoid genes encode enzymes selected from the group consisting of D-1-deoxyxylulose-5-phosphate synthase (DXS); D-1-deoxyxylulose-5-phosphate reductoisomerase (DXR); 2C-methyl-d-erythritol cytidyltransferase (IspD), 4-diphosphocytidyl-2-C-methylerythritol kinase (IspE), 2C-methyl-d-erythritol 2,4-cyclodiphosphate synthase (IspF), CTP synthase (IspA) and Geranyltranstransferase (PyrG).